

## *Prostanthera ferricola* (Lamiaceae), a new species from Western Australia

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### Abstract

Conn, B.J. & Shepherd, K.A. *Prostanthera ferricola* (Lamiaceae), a new species from Western Australia. *Nuytsia* 17: 147–152 (2007). *Prostanthera ferricola* B.J.Conn & K.A.Sheph., a distinctive new species endemic to ironstone and quartzite hills in the northern Yilgarn region of Western Australia, is described. This species is readily distinguished from *P. centralis* B.J.Conn and *P. magnifica* C.A.Gardner by its smaller leaves (5.5–10 mm long), purple-mauve adaxial surface of the calyx, a larger corolla (18–20 mm long) with hairs and glands on the outer surface, an absence of trichomes on the dorsal surface of the connective of the anthers and a longer pistil (20–21 mm long). Images of the holotype and field photographs of the habit and inflorescence are included along with a distribution map.

### Introduction

Taxonomic revisions of the species of *Prostanthera* Labill. occurring in Western Australia have already been published (Conn 1984, 1988). A new species of *Prostanthera*, named here as *P. ferricola* B.J.Conn & K.A.Sheph., was first collected by Geoff Byrne from near Meekatharra in 2003. Further collections acquired during recent floristic surveys of Banded Iron Formation (BIF) ranges by the Department of Environment and Conservation (DEC) helped clarify the status of this taxon. Although the similarity of these collections to *P. centralis* B.J.Conn was noted by Mike Hislop of the Western Australian Herbarium (PERTH), he also recognised that they differed significantly from this species on account of their smaller leaves and short, patent indumentum. This taxon was subsequently given the informal name *Prostanthera* sp. Murchison (G. Byrne 239) and included on the census of Western Australian plants database. This species is restricted to a number of ironstone and quartzite hills in the Murchison and Gascoyne regions (Interim Biogeographic Regionalisation for Australia (IBRA); Thackway & Cresswell 1995; Environment Australia 2000) of Western Australia and, as it may be threatened by future mining activities, it was considered a priority to be named. The recognition of *P. ferricola* brings the total number of species of *Prostanthera* in Western Australia to 26 (Western Australian Herbarium 1998–). Ten of these species are listed as being of conservation concern in Western Australia (Atkins 2006).

## Methods

Morphological characters were scored from herbarium specimens lodged at NSW and PERTH. Herbarium abbreviations are as given in Holmgren *et al.* (1990). In general, usage of terms follows Porter *et al.* (1973) and Stearn (1973). Terminology for plane shapes follows the Systematics Association Committee for Descriptive Biological Terminology (1962). Inflorescence terminology follows Briggs and Johnson (1979), except as modified by Conn (1995). In the descriptions, those character states which rarely occur, i.e. only once or a few times, in an otherwise typical individual specimen are enclosed in parentheses. The habitat notes are taken from collectors' notes on the labels of herbarium sheets. The summary of the distribution of this species is based on IBRA Version 5.1 (Thackway & Cresswell 1995; Environment Australia 2000) as modified on FloraBase (Western Australian Herbarium 1998–). Distribution maps were produced using DIVA-GIS freeware (Version 5.2.0.2) and are based on IBRA version 6.1 (Department of Environment and Water Resources 2007). Precise localities are withheld due to conservation concerns.

## Taxonomy

***Prostanthera ferricola*** B.J.Conn & K.A.Sheph., *sp. nov.*

*Prostantherae centrali* B.J.Conn affinis sed foliis minoribus (5.5–10 × 1.5–2.5 mm *cf.* 9–20(–27) × 4–9(–13) mm), calyce profunde purpureo-malvino (*cf.* purpureo-viride), corolla longiore (18–20 mm longa, tubo 15–18 mm longo *cf.* 11–16 mm longa, tubo 8–10.5 mm longo), connectivo antherarum trichomata deficienti, pistillo longiore (20–21 mm *cf.* 9–11 mm longo) differt.

*Typus*: Robinson Ranges, Western Australia [precise locality withheld for conservation purposes], 17 August 2006, R. Meissner & B. Bayliss 742 (*holo*: PERTH 07220618; *iso*: NSW 746276).

*Prostanthera* sp. Murchison (G. Byrne 239), Western Australian Herbarium, in FloraBase, <http://florabase.dec.wa.gov.au> [accessed 30 May 2007].

Erect, openly branched *shrub* 0.3–1 m high. *Branches* ± terete, densely hairy throughout [60–100 hairs/mm<sup>2</sup>]; hairs straight, ± patent, short, 0.1–0.15(–0.2) mm long, white; moderately glandular [25–40 glands/mm<sup>2</sup>], with both sessile (hemispherical) and distinctly podiate glands. *Leaves* flat, green to pale green above and below, strongly aromatic when crushed; *petiole* 0.5–1 mm long; *lamina* ovate to narrowly ovate, 5.5–10 mm long, 1.5–2.5 mm wide [length to width ratio 2.8–4.8, length of maximum width from base to total lamina length ratio 0.25–0.3], densely hairy and moderately glandular (as for branchlets); base shortly attenuate; margin entire; apex obtuse; venation not visible, midrib slightly raised. *Inflorescence* a frondose racemiform confflorescence, uniflorescence monadic; 4–12-flowered [per confflorescence], with basal lateral axes 2–4-flowered. *Pherophylls* not seen. *Podium* 0.7–1.5 mm long, densely hairy and moderately glandular (as for branchlets). *Prophylls* persistent, inserted from near midpoint to distal third of podium [a, axis to anthopodium ratio 0.5–1], opposite, narrowly elliptic, 2–4(–5) mm long, 2–3 mm wide [length to width ratio 1–1.7, length of maximum width from base to total lamina length ratio *c.* 0.5], moderately hairy (hairs 0.06–0.1 mm long), with occasional glands; base tapering; margin entire; apex obtuse; venation not visible. *Calyx* with abaxial lobe green to faintly purple-mauve; adaxial lobe and adaxial surface strongly purple-mauve; outer surface moderately hairy (as for branchlets), especially on tube, distally slightly less densely hairy, except margin densely fringed with white hairs, sparsely to moderately glandular (glands hemispherical); inner surface sparsely to

moderately hairy and glandular, sparser distally; tube 2.5–3 mm long; *abaxial lobe* broadly ovate, 5–6 mm long, 4–4.5 mm wide at base [length to width ratio 1.1–1.4], apex rounded, entire (sinus absent) or slightly to distinctly emarginate, sinus 0.2–0.8 mm long, 1–1.2 mm wide distally; *adaxial lobe* ovate, 11–13 mm long, 7.5–9 mm wide at base [length to width ratio 1.4–1.7], apex slightly mucronate, sometimes with two slightly mucronate apices, [adaxial lobe length to abaxial lobe length ratio 2–2.4]. *Corolla* 18–20 mm long, mauve-purple, apparently lacking marking on inner surface; outer surface glabrous basally, distally sparsely to moderately hairy [16–25 hairs/mm<sup>2</sup>], hairs 0.1–0.2 mm long,  $\pm$  patent, moderately glandular; inner surface moderately hairy, especially near mouth and on lobes, hairs 0.1–0.2 mm long; *tube* 15–18 mm long; *abaxial median lobes* depressed ovate, 5–6 mm long, 9–10 mm wide [length to width ratio 0.5–0.6], apex irregular and rounded, deeply bilobed, sinus 4–4.5 mm long, 3–4 mm wide distally; *lateral lobes* broadly ovate, 5.5–6 mm long, 4–4.5 mm wide [length to width ratio 1.2–1.4], apex rounded and slightly irregular; *adaxial median lobe-pair* very broadly ovate, 6.5–6.8 mm long, 8–9 mm wide [length to width ratio 0.7–0.8], deeply divided into 2 lobes, almost to base, sinus c. 6 mm long, apex of each lobe rounded to subtruncate, slightly irregular, median margin of lobes slightly overlapping near base. *Stamens* inserted 8–9 mm above base of corolla; filaments 8.5–9.5 mm long; anthers 1.4–1.5 mm long, lobes with small acumen basally (acumen 0.2–0.3 mm long), trichomes absent on basal dorsal surface, connective extended to form a basal appendage 1.2–1.8 mm long, terminating in 1 or 2 narrowly triangular trichomes 0.2–0.3 mm long. Disc 0.4–0.5 mm long. *Pistil* 20–21 mm long; *ovary* cylindrical obovoid, 0.4–0.5 mm long, diameter at base 0.6–0.8 mm, lobes 0.1–0.2 mm long, glands present; *style* 19–20 mm long; *stigma lobes* 0.3–0.4 mm long. *Fruiting calyx* not or only slightly enlarged (abaxial lobe 5–6 mm long, 4–5 mm wide [length to width ratio 1.2–1.3]; adaxial lobe 12–16 mm long, 9–10 mm wide [length to width ratio 1.3–1.6]; [adaxial lobe length to abaxial lobe length ratio 2.4–2.7]). *Mericarps* 1.8–2 mm long, distally c. 1.2 mm extended beyond base of style, distal diameter 2.5–2.8 mm; seeds slightly flattened, ellipsoid-cylindrical, 1.5–2 mm long, 0.5–1.6 mm diameter; surface smooth. (Figure 1A–E)

*Specimens examined.* WESTERN AUSTRALIA: [localities withheld] 27 July 2003, G. Byrne 239 (PERTH 07167741); 6 Apr. 2006, A. Capobianco AC 658-02 (PERTH 07458509); 25 Aug. 2004, D. Edinger 4608 (PERTH 07056745); 1 Sep. 2005, A. Markey & S. Dillon 3001 (PERTH 07372264); 15 Aug. 2006, A. Markey & S. Dillon 4115 (PERTH 07220308); 15 Aug. 2006, A. Markey & S. Dillon 4116 (PERTH 07220316); 15 Aug. 2006, A. Markey & S. Dillon 4117 (PERTH 07220324); 27 Aug. 2005, R. Meissner & Y. Caruso 126 (PERTH 07357532); 9 Aug. 2006, R. Meissner & B. Bayliss 739 (PERTH 07220561); 17 Aug. 2006, R. Meissner & B. Bayliss 740 (PERTH 07220588); 20 June 2006, J. Naaykens s.n. (PERTH 07528914); 29 June 2006, J. Naaykens s.n. (PERTH 07529139).

*Distribution and habitat.* Currently known from the Murchison (MUR) and Gascoyne (GAS) IBRA regions of the Eremaean Botanical Province (Figure 1F). Infrequent in sparse *Acacia aneura* shrubland on gently inclined mid and upper slopes and crests of banded ironstone and basalt, in shallow red-brown skeletal sandy loam soils (Figure 1B), occasionally found in gullies or on quartz.

*Phenology.* Flowering from July to September.

*Conservation status.* Recently listed as Priority Three under DEC Conservation Codes for Western Australian Flora. This species may be vulnerable to impact from future mining activities as there are only six known populations which are restricted to ironstone outcrops and lateritic hills.

*Etymology.* The specific epithet *ferricola* is derived from the Latin *ferreum* (iron) and *-cola* (dweller), in reference to this species growing in banded ironstone-derived soils.



*Notes.* The affinities of *P. ferricola* are unclear; however, morphologically it is similar to *P. centralis*. It can be distinguished from this species by its smaller leaves (5.5–10 mm long, 1.5–2.5 mm wide cf. *P. centralis* (9–20(–27) mm long, 4–9(–13) mm wide), strongly purple-mauve coloration of adaxial surface of calyx (*P. centralis* purple-green distally), larger corolla (18–20 mm long cf. *P. centralis* 11–16 mm long, including longer corolla tube (15–18 mm long cf. *P. centralis* 8–10.5 mm long), trichomes absent on dorsal surface of the connective of the anthers (triangular trichomes present in *P. centralis*), and longer pistil (20–21 mm long cf. *P. centralis* 9–11 mm long). It is also morphologically similar to *P. magnifica* C.A.Gardner. However, *P. magnifica* has a glabrous calyx (on outer surface) and anthers that are usually cristate (trichomes present).

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